

State of Illinois  
Department of Transportation  
Bureau of Materials and Physical Research

MEMORANDUM

October 1, 2000	Springfield	2000-01
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TO: DISTRICT ENGINEERS AND HIGHWAY BUREAU CHIEFS

SUBJECT: RECYCLING PORTLAND CEMENT CONCRETE INTO AGGREGATE

Section 1003 and 1004 of the Standard Specifications for Road and Bridge Construction includes "crushed concrete" as an acceptable source of aggregate material. Care must be taken, however, to assure that quality and gradation requirements are not compromised when recycled concrete is used in lieu of other aggregate materials. Freeze-thaw tests are required if the crushed concrete is to be recycled as Portland cement concrete pavement. Concrete removal and crushed concrete stockpiling and handling must be performed in such a manner as to avoid contamination of the aggregate with dirt and foreign matter.

Acceptance of crushed concrete shall be on a project-by-project basis or from stockpiled crushed material at a central recycling plant.

I. Project Acceptance

Recycling Portland cement concrete may be specified by special provision for appropriate projects. The crushed concrete shall be recycled from IDOT-specified concrete in the project. The Engineer shall approve the concrete removal method prior to crushing and continually monitor the method during crushing for unacceptable contamination.

- A. Quality. The fact that the original aggregate in the concrete met "Class A" quality does not mean that the product resulting from the crushing of the concrete will meet "Class A" quality. Preliminary samples of existing concrete from a number of locations (minimum 3) in any potential recycling project shall be submitted to the Central Laboratory for quality testing. A period of three months is required for freeze-thaw testing if the material is to be recycled into Portland cement concrete pavement, base course, or base course widening. This work shall be completed prior to advertising the project for bidding.

Quality sampling and testing shall comply with the Manual for Aggregate Inspection and the Standard Specifications for Road and Bridge Construction, except as specified herein.

Recycled Asphalt Pavement (RAP) shall not be considered as Other Deleterious

when Crushed Concrete is used as Aggregate Shoulders, Type B. RAP shall not exceed 2.0% when counted out as Other Deleterious in a Class A quality Deleterious Count.

- B. Gradation. Gradation sampling and testing shall conform to the Manual for Aggregate Inspection, or the Aggregate Gradation Control System (AGCS), as required.
- C. Stockpiling. Contamination in the stockpile area is as detrimental as contamination when picking up the broken concrete. Stockpile pads shall be provided and haul roads/plant area properly maintained to assure that acceptable material is not contaminated prior to use.

Stockpiling, hauling, and loading shall conform to the Manual for Aggregate Inspection, or the Aggregate Gradation Control System, as required.

## II. Central Recycling Plant

Portland cement concrete may be recycled by crushing at a central recycling plant. The Standard Specifications and the Manual for Aggregate Inspection, unless otherwise stated in this policy memorandum, shall apply to crushed concrete recycled in this manner.

Concrete used as raw feed at a central recycling plant shall not be contaminated with dirt or foreign matter.

Acceptance for quality and gradation shall be on a stockpile-by-stockpile basis.

- A. Quality. Each stockpile shall have one quality sample per each 5000 tons per specific gradation submitted for quality testing. The quality samples shall be taken from stockpiled material. Since non-IDOT specified concrete may be included in recycling at central recycling plants, the crushed concrete produced at the central recycling plant is not acceptable for Class A quality use, Class B quality use, or Class C quality Class I mixture use.

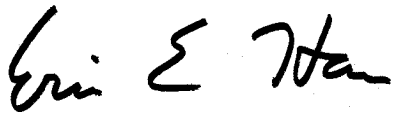
If quality testing indicates a problem with a specific gradation at a plant, the stockpile size per each quality sample for that specific gradation shall be changed to one sample per 1500 tons.

Quality sampling and testing shall comply with the Manual for Aggregate Inspection and the Standard Specifications for Road and Bridge Construction, except as specified herein.

The Other Deleterious maximum percent limit for Class C Quality Deleterious Count shall be 7.0%, with no more than 5.0% RAP allowed, nor more than 2.0% other material defined as Other Deleterious.

Recycled Asphalt Pavement shall not be considered as Other Deleterious when Crushed Concrete is used as Aggregate Shoulders, Type B. The distribution of the RAP within the crushed concrete shall be uniform as determined by the Engineer.

- B. Gradation. Gradation sampling and testing shall comply with the Manual for Aggregate Inspection, or the Aggregate Gradation Control System, as required..
- C. Stockpiling. Stockpiling, hauling, and loading shall comply with the Manual for Aggregate Inspection, or the Aggregate Gradation Control System, as required.. Stockpile pads shall be provided and the haul roads/plant area properly maintained to prevent contamination.



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This Policy Memorandum supersedes Policy Memorandum 96-2, effective February 1, 1996.
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